

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: David M. Lubman *et al.*

Serial No.: 09/778,496

Filed: 02/07/01

Entitled: Mapping Of Differential Display Of Protein

Group No.: 1631

Examiner: Mahatan

All  
Plunkett  
7/18/03

**SUPPLEMENTAL INFORMATION DISCLOSURE  
STATEMENT TRANSMITTAL**

Commissioner for Patents  
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Dated: June 24, 2003

By: Mary Ellen Waite

Mary Ellen Waite

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Enclosed please find a Supplemental Information Disclosure Statement and Form PTO-1449, including copies of the references contained thereon, for filing in the U.S. Patent and Trademark Office.

Applicants believe no fee is required. If the Commissioner deems otherwise, the Commissioner is hereby authorized to charge any additional fee or credit overpayment to our Deposit Account No. 08-1290. **An originally executed duplicate of this transmittal is enclosed for this purpose.**

Dated: June 24, 2003

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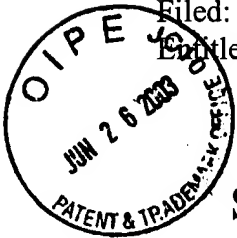
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By: \_\_\_\_\_

Mary Ellen Waite

Sir or Madam:

The citations listed below, copies attached, may be material to the examination of the above-identified application, and are therefore submitted in compliance with the duty of disclosure defined in 37 C.F.R. §§ 1.56 and 1.97. The Examiner is requested to make these citations of official record in this application.

The following are related U.S. patent applications:

- 09/778547, Lubman, *et al.*, "Protein Mapping;"
- 09/778548, Lubman, *et al.*, "Protein Separation and Display;"
- 10/133896, Lubman, *et al.*, "Proteomic Differential Display;"
- 09/968930, Lubman, *et al.*, "Protein Mapping;"
- 10/133711, Wall, *et al.*, "Three-Dimensional Protein Mapping."

The following are related WO patents:

- WO 01/58925, Chong *et al.* "Protein Separation And Display;"
- WO 01/58926, Chong *et al.* "Protein Mapping;" and
- WO 02/088701, Wall *et al.*, "Methods Of Multi-Phase Protein Analysis."

The following references were cited in the International Search Report for the related PCT Patent WO0158925:

- US 5670054, Kibbey *et al.*, "Method and system for identification, purification, and quantitation of reaction components;"
- US 5498545, Vestal, "Mass spectrometer system and method for matrix-assisted laser desorption measurements;"
- EP0617048, Waters Investments LTD (US), "Method of capillary isoelectric focusing of proteins and peptides with fraction collection for post-run analysis;"
- WO9701755, Perspective Biosystems Inc. "High Speed, Automated, Continuous Flow, Multi-Dimensional Molecular Selection And Analysis;"
- WO 98/40395, Taylor Paul D *et al.*, "Band Array Display Of Polynucleotide Separations;"
- Andrews, *et al.*, "Analysis of DNA adducts using high-performance separation techniques coupled to electrospray ionization mass spectrometry," J Chromatogr A, 856(1-2):515 (1999);
- Ball and Mascagni, "Purification of synthetic peptides using reversible chromatographic probes based on the Fmoc molecule," Int J Pept Protein Res, 40(5):370 (1992);
- Davidsson and Nilsson, "Peptide mapping of proteins in cerebrospinal fluid utilizing a rapid preparative two-dimensional electrophoretic procedure and matrix-assisted laser desorption/ionization mass spectrometry," Biochim Biophys Acta, 1473(2-3):391 (1999);
- Lee, "Protein separation using non-porous sorbents," J Chromatogr B Biomed Sci Appl, 699(1-2):29 (1997);

- Medzihradszky *et al.*, "Protein sequence and structural studies employing ionization-high energy collision-induced dissociation," International J of Mass Spectrometry and Ion Processes, 160(1):357 (1997);
- Nimura *et al.*, "Fast Protein separation by reversed-phase high-performance liquid chromatography on octadecylsilyl-bonded non-porous silica gel effect of particle efficiency," Journal of Liquid Chromatography, 585(2):207 (1991); and
- Richmond *et al.*, "High-throughput flow injection analysis-mass spectrometry with networked delivery of colour rendered results: the characterisation of liquid chromatography fractions," Journal of Chromatography, 835(1-2):29 (1999).

The following references were cited in the International Search Report for the related PCT Patent WO02088701:

- Hermann and Andreas, "Mapping and identification of Corynebacterium glutamicum proteins by two-dimensional gel electrophoresis and microsequencing," Electrophoresis, 19(18):3217 (1998);
- Houen and Bach, "Characterization of protein carboxy-terminal ends using carboxypeptidase peptide Y: Sequence, composition, and identification of the carboxy-terminal peptide by peptide mapping," Methods Molecular Cellular Biology, 3(4):175 (1992);
- Patterson and Aebersold, "Mass spectrometric approaches for the identification of gel-separated proteins," Electrophoresis, 16(10):1791 (1995);
- Raznukov and A., "Selective digital filtering of mass spectra of chromatography data for determination of "target" compounds in complex mixtures," Advances in Mass Spectrometry, 14(E044280/1 (1998);
- SZE and Dominic, "Time-of-flight effects in matrix-assisted laser desorption/ionization Fourier transform mass spectrometry," Rapid Commun Mass Spectrom, 13(5):398 (1999);
- Wall, *et al.*, "Isoelectric focusing nonporous silica reversed-phase high-performance liquid chromatography/electrospray ionization time-of-flight mass spectrometry: a three-dimensional liquid-phase protein separation method

as applied to the human erythroleukemia cell-line," *Rapid Commun Mass Spectrom*, 15(18):1649 (2001);

- Wall, *et al.*, "Three-dimensional protein map according to pI, hydrophobicity and molecular mass," *J Chromatogr B Analyt Technol Biomed Life Sci*, 774(1):53 (2002); and
- Zgoda and Victor G; Prossorovsky, "Prediction and experimental confirmation of the cytochrome b5 three-dimensional peptide map," *Physical Chemical Biology and Medicine*, 2(3):135 (1995);

Applicants have become aware of the following printed publications which may be material to the examination of this application:

- Bini, *et al.*, "Protein expression profiles in human breast ductal carcinoma and histologically normal tissue," *Electrophoresis*, 18(15):2832 (1997);
- Chen, *et al.*, "Identification of proteins from two-dimensional gel electrophoresis of human erythroleukemia cells using capillary high performance liquid chromatography/electrospray-ion trap-reflectron time-of-flight mass spectrometry with two-dimensional topographic map analysis of in-gel tryptic digest products," *Rapid Commun Mass Spectrom*, 13(19):1907 (1999);
- Clauser, *et al.*, "Role of accurate mass measurement (+/- 10 ppm) in protein identification strategies employing MS or MS/MS and database searching," *Anal Chem*, 71(14):2871 (1999);
- Dai, *et al.*, "Two-layer sample preparation: a method for MALDI-MS analysis of complex peptide and protein mixtures," *Anal Chem*, 71(5):1087 (1999);
- Damerval, "Quantification of silver-stained proteins resolved by two-dimensional electrophoresis: genetic variability as related to abundance and solubility in two maize lines," *Electrophoresis*, 15(12):1573 (1994);
- Fuqua, *et al.*, "Induction of the estrogen-regulated "24K" protein by heat shock," *Cancer Res*, 49(15):4126 (1989);
- Hanash, *Advances in Electrophoresis*, 1-44 (1998);

- Herbert, "Advances in protein solubilisation for two-dimensional electrophoresis," *Electrophoresis*, 20(4-5):660 (1999);
- Hoogland C., "The 1999 SWISS-2DPAGE database update.," *Nucleic Acids Res*, 28(286 (2000));
- Immler, *et al.*, "Identification of phosphorylated proteins from thrombin-activated human platelets isolated by two-dimensional gel electrophoresis by electrospray ionization-tandem mass spectrometry (ESI-MS/MS) and liquid chromatography-electrospray ionization-mass spectrometry (LC-ESI-MS)," *Electrophoresis*, 19(6):1015 (1998);
- Kahn, "From genome to proteome: looking at a cell's proteins," *Science*, 270(5235):369 (1995);
- Matsui, *et al.*, "Immobilized pH gradient two-dimensional gel electrophoresis and mass spectrometric identification of cytokine-regulated proteins in ME-180 cervical carcinoma cells," *Electrophoresis*, 18(3-4):409 (1997);
- Mohammad, *et al.*, "Induced expression of alpha-enolase in differentiated diffuse large cell lymphoma," *Enzyme Protein*, 48(1):37 (1994);
- Neidhardt, *et al.*, "Genomically linked cellular protein databases derived from two-dimensional polyacrylamide gel electrophoresis," *Electrophoresis*, 10(2):116 (1989);
- Neubauer and Mann, "Mapping of phosphorylation sites of gel-isolated proteins by nanoelectrospray tandem mass spectrometry: potentials and limitations," *Anal Chem*, 71(1):235 (1999);
- O'Farrell, "High resolution two-dimensional electrophoresis of proteins," *J Biol Chem*, 250(10):4007 (1975);
- Opiteck, *et al.*, "Comprehensive two-dimensional high-performance liquid chromatography for the isolation of overexpressed proteins and proteome mapping," *Anal Biochem*, 258(2):349 (1998);
- Patterson, "Matrix-assisted laser-desorption/ionization mass spectrometric approaches for the identification of gel-separated proteins in the 5-50 pmol range," *Electrophoresis*, 16(7):1104 (1995);

- Rasmussen, *et al.*, "Two-dimensional gel database of human breast carcinoma cell expressed proteins: an update," *Electrophoresis*, 19(5):818 (1998);
- Redner, *et al.*, "The t(5;17) 'variant of acute promyelocytic leukemia expresses a nucleophosmin-retinoic acid receptor fusion,'" *Blood*, 87(3):882 (1996);
- Reid, *et al.*, "Capillary column chromatography improves sample preparation for mass spectrometric analysis: complete characterization of human alpha-enolase from two-dimensional gels following in situ proteolytic digestion," *Electrophoresis*, 19(6):946 (1998);
- Reymond, *et al.*, "Standardized characterization of gene expression in human colorectal epithelium by two-dimensional electrophoresis," *Electrophoresis*, 18(15):2842 (1997);
- Righetti, "Isoelectric focusing : theory, methodology, and applications," Elsevier Biomedical Press; Sole distributors for the U.S.A. and Canada, Elsevier-North Holland, 1st, 10 (1983);
- Rosenfeld, *et al.*, "In-gel digestion of proteins for internal sequence analysis after one- or two-dimensional gel electrophoresis," *Anal Biochem*, 203(1):173 (1992);
- Sanchez, *et al.*, "Inside SWISS-2DPAGE database," *Electrophoresis*, 16(7):1131 (1995);
- Sirover, "New insights into an old protein: the functional diversity of mammalian glyceraldehyde-3-phosphate dehydrogenase," *Biochim Biophys Acta*, 1432(2):159 (1999);
- Steller, "Mechanisms and genes of cellular suicide," *Science*, 267(5203):1445 (1995);
- ten Hoeve, *et al.*, "Isolation and chromosomal localization of CRKL, a human crk-like gene," *Oncogene*, 8(9):2469 (1993);
- Welsh, *et al.*, "Variation in expression of hsp27 messenger ribonucleic acid during the cycle of the seminiferous epithelium and co-localization of hsp27 and microfilaments in Sertoli cells of the rat," *Biol Reprod*, 55(1):141 (1996);  
and

- Zugaro, *et al.*, "Characterization of rat brain stathmin isoforms by two-dimensional gel electrophoresis-matrix assisted laser desorption/ionization and electrospray ionization-ion trap mass spectrometry," *Electrophoresis*, 19(5):867 (1998).

This Information Disclosure Statement under 37 C.F.R. §§ 1.56 and 1.97 is not to be construed as a representation that a search has been made, that additional information material to the examination of this application does not exist, or that any one or more of these citations constitutes prior art.

Dated: June 24, 2003



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